

HIQA Electronic Health Records Workshop

Priorities and strategies for successful EHR adoption

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Drivers for integrating health information

- Establish a longitudinal person-centric record of care
- Manage increasingly complex clinical care
- Connect multiple locations of care delivery
- Support team-based care
- Deliver evidence-based health care
- Improve safety
 - reduce errors and inequalities
 - reduce duplication and delay
- Improve cost effectiveness of health services
- Empower and involve citizens
- Underpin population health and research
- Protect patient privacy

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Demonstrated benefits of health informatics solutions

- Alerting systems have been shown to save lives
- Hospitals have 50-100 “departmental” systems that are cherished and richly used
- GP systems are an example of good participatory design and high quality use
- Health informatics literature is rich with innovative pilots and projects that have delivered improved outcomes
- A high proportion of patients use the Internet for health information and guidance
- Patient inclusion projects (telemedicine, telemonitoring, PHRs) are popular with patients and clinicians
- Shared (patient/clinician) IT tools improve clinical outcomes

Our present-day approach to these challenges



In a generated medical summary

List of diagnoses and procedures

1993	Procedure	Appendicectomy
1996	Diagnosis	Meningococcal meningitis
1997	Procedure	Termination of pregnancy
2003	Diagnosis	Acute psychosis
2006	Diagnosis	Schizophrenia



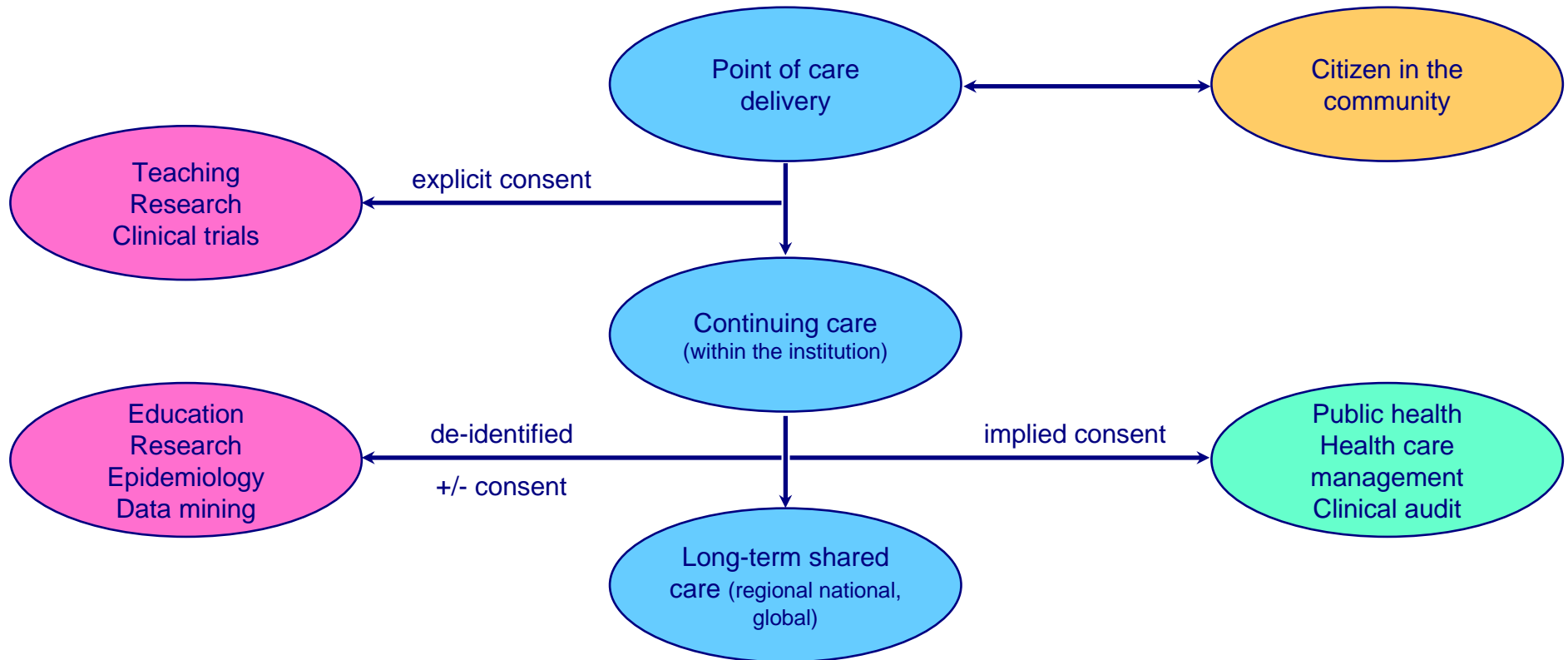
Can we safely interpret a diagnosis without its context?

Clinical interpretation context

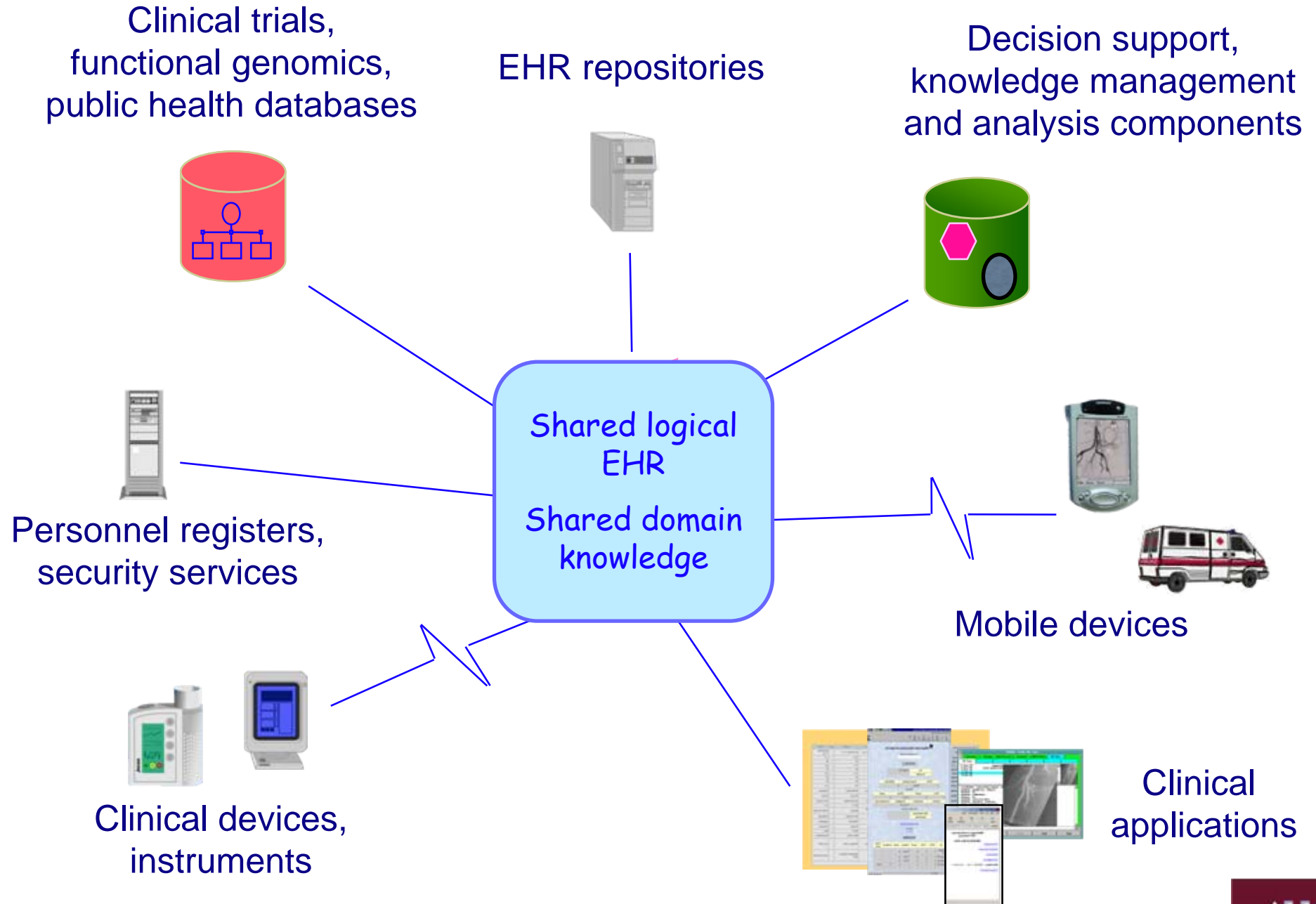
Emergency Department	Seen by junior doctor
Reason for encounter	Brought to ED by family
Symptoms	"They are + ..."
Mental state exam	H...
	Delusio...
	Disor...
Diagnosis	Schizophrenia
Certainty	Working hypothesis
Management plan	Admission etc.....

Junior doctor,
emergency situation,
a working hypothesis
so
schizophrenia is not
a
reliable diagnosis

Where is EHR information needed?



The shared EHR

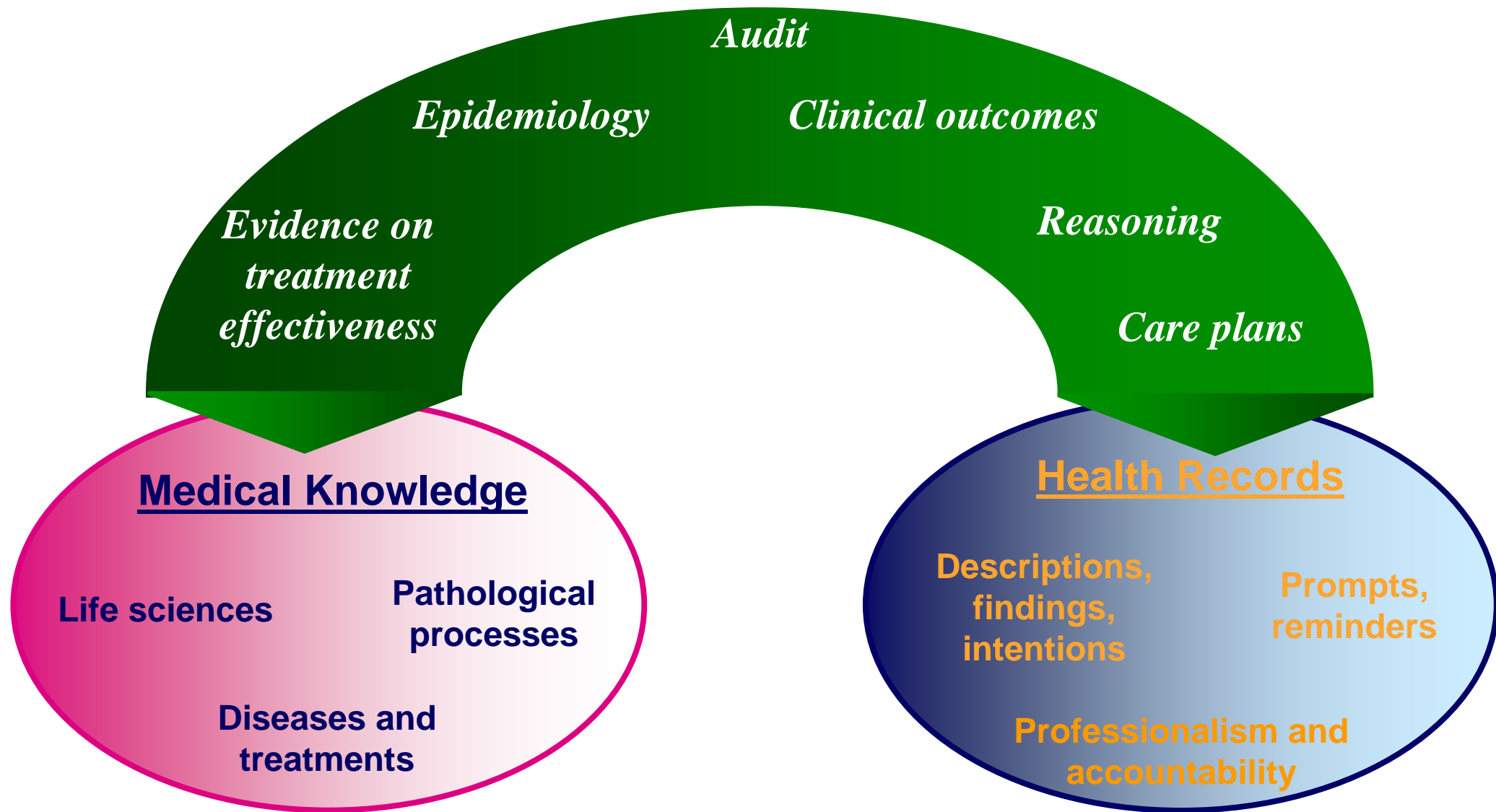


Why do we need rich interoperability within and between EHRs?

- To support patient safety, quality of care, chronic disease management, extended home-care, patient empowerment
 - enable the safe, meaningful sharing and combining of health record data between heterogeneous systems and actors / care providers
 - enable the integration and safe use of computerised protocols, alerts and care pathways by EHR systems
 - link EHR data to explanatory and educational materials to support patient and family engagement and professional development
 - ensure the necessary data quality and consistency to enable meaningful and reliable use of longitudinal and heterogeneous data for public health, research, health service management

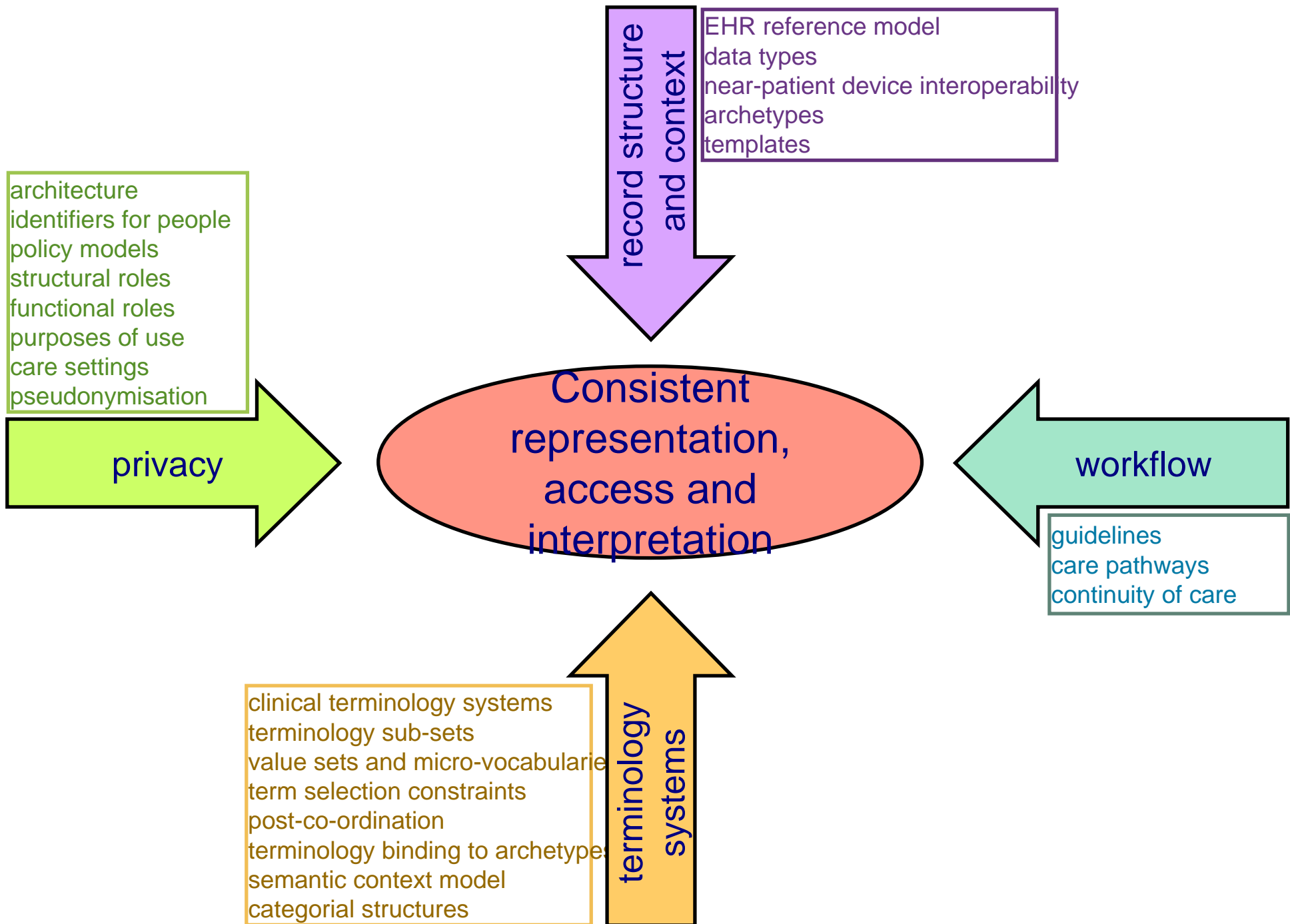
**Clinical meaning (data, information, knowledge)
must be capable of being represented consistently
in order to be shared and understood by people and computers**

Knowledge assets that need to be harnessed



The advantages of systematically structured records

- Can help optimise the use of guidelines and care pathways
 - Enables precise mapping to terminology for relevant values
 - Can support speedy data entry if tailored to clinical workflows
 - Can enable consistent data capture, promote completeness, allow error checking, and so lead to better data quality
 - Easier to apply workflow logic, decision support and alerts
 - Easier to generate reports and audits
-
- But, for this, we need to adopt consistent clinical data structures within the EHR



Fundamentals

- A comprehensive and reliable shared EHR is a key underpinning for a successful e-Health programme
- Globally, no one product has yet achieved best of breed
- Globally, no one e-Health setting is yet an example of best practice
- All settings are still learning, and evolving their health information management solutions

Some hard lessons to be learned from national e-Health programmes

- Most of them are projected to under-deliver, especially in areas relating to sharing clinical information
- Society and the press are increasingly sceptical
- Treasury budgets are severely limited
- Vendors are stretched to deliver
- Clinicians in many countries have felt excluded and are disillusioned
- National and in-hospital infrastructures are not that mature yet
- Security and confidentiality management is not great
- Few countries are investing seriously in health informatics education

Common themes emerging from e-Health programmes

- Technology isn't the answer to the problem
 - None have yet cited technical issues as their biggest challenge
- No off-the-shelf implementation has been successfully deployed without significant customisation
 - This has usually required a significant number of strategic and policy decisions and strong engagement of local stake-holders
- The greatest challenges lies within healthcare organisations, in shaping the kind of EHR, kind supplier relationship, the overall repository adoption strategy, and balancing different stakeholder priorities
 - These choices will depend upon the intended usage of the information, surfacing in issues such as data quality, semantics, standardisation, and interoperability
- An incremental and adaptable approach has invariably proved essential for success

Engagement is essential

- Clinical engagement
 - start by agreeing what kind of solution would be useful and usable
 - keep clinicians involved throughout the journey
- Societal engagement
 - Priority setting and engagement with the solutions
 - ensure patient safety and protection of confidentiality
- Vendor engagement
 - accommodate legacy systems, existing data quality and completeness
 - minimise the complexity of new solutions
 - offer a business case for new investments
- Nation-wide engagement
 - public and private, payers and providers
- Clinical engagement again
 - the culture of sharing records, the culture of re-using records, systems for ensuring confidentiality, security and trust

Some examples of the challenges requiring a strategic approach

- Computable versus non-computable data
- Shared clinical meaning, and consistent record structures
- The perceived value of legacy data, and the challenge of harmonising this
- Open architectures and standards
- Demographics and identifiers
- Privacy management
- Developing an incremental adoption strategy
- Growing solutions in situ or choosing a product with existing EHR capability
- Maintaining a multi-vendor environment
- Agreeing suitable relationships with the suppliers

Computable versus non-computable data

- Non computable data (e.g. letters and reports, as PDFs) can rapidly be incorporated into a repository
 - Almost no formal modelling is required
 - Limited semantics, limited querying capability requirements
- But realising the benefits of evidence based care, care pathways, patient safety and good management all require that information is well modelled and semantically coherent
 - This requires a repository that is underpinned by a comprehensive and standards based information architecture
 - And requires a formal and systematic approach to clinical data structures and terminology - to maximise data quality and consistency

Maintaining a multi-vendor environment

- Most e-Health programmes have neither the budget nor the desire to displace the existing marketplace of health care systems and suppliers
 - unless some streamlining is needed to remove poorly-performing products and suppliers
- The ideal EHR products work with these third parties and enables them to feed an EHR repository in near-to-real-time and to present their users with additional data from the repository
- This requires open and standards based architecture and a supplier attitude that will foster collaborative partnerships with legacy vendors

Options for incremental EHR adoption

- By locality
 - Working initially with a confined set of organisations and stakeholders
- By type of care setting
 - e.g. only hospital or only GP records
- By class of data
 - e.g. pathology results, e-prescriptions, screening, medication and allergies, condition lists
- By condition
 - e.g. diabetes, heart disease, cancer
- By sub-population
 - e.g. children, elderly
- By date
 - e.g. limiting legacy data import to the last five years

Semantic Health

recommended priority use cases for safe shared care

- New medication prescriptions
 - requiring comprehensive information on concurrent medication and details of known allergies and conditions (not simple ETP)
- Reminders and prompts
 - for overdue or overlooked health care actions and interventions
- Evidence based care
 - the use of clinical guidelines and other forms of evidence to determine the optimal management strategy and care pathway for a given patient
- Care transfers
 - referrals and within-team workflow such as the degree of urgency and the expectations of the referring clinician from another team member
- Care co-ordination
 - ensuring that a high-level view can be taken of distributed (multi-team) care to protect against duplication, delay and incompatible interventions
- Medical summaries

National priorities: ISO workshop session, 4 days ago

- Medication: prescriptions, allergy checking, interactions
- Centrally held emergency care summary
- Laboratory data
- Primary care: community, child, prenatal, immunisations
- Chronic diseases: Diabetes, COPD, Heart failure
- Transfer of whole record between GP systems
- Reporting needs for communicable diseases (AIDS, TB, malaria)

Kinds of EHR content

- Prescriptions
- Medical summary, regularly updated
- Medication record (supporting safe prescribing)
- Chronic disease management for individual diseases e.g. epilepsy
- Investigation results
- Screenings and recalls
- Discharge summaries
- All clinical documents
- Whole community/GP records
- Complete EHR but not retrospective
- Complete EHR cradle to grave

Aim for the right level of EHR implementation, for now

- Solve real clinical information gaps
 - join up virtual teams to improve safety and shared care
 - define the benefits right at the start
- Develop clinical scenarios and relevant data structures with multi-professional (& multi-national) input
- Use available evidence and consensus practice (not always best practice)
- Balance project aspiration and end-user practicality
- No need to structure everything
 - start by codifying the data that can be computationally exploited
 - don't depend too much on data that is not already collected
- Pilot in realistic settings before wide roll out

Conclusions

- A shared national EHR is a critical part of an e-Health programme
- Its realisation is a journey and not a shrink-wrapped product
 - An incremental approach
 - The need to define suitable milestones
 - The need to grow the solution
 - The need for adaptability in the light of experience and external factors
- Stakeholders need to engage with strategy and its follow-through
- Perhaps the most significant lesson learned so far is that investments must be made toward an established vision, leveraging incremental milestones to demonstrate progress against that vision